Water Testing Procedures

Over a billion people world wide lack any safe drinking water. As a result almost two million children world wide die each year of diarrhea, and over 4 billion people are sickened by drinking water contaminated by feces. In some areas of the world 40% of all hospital admissions are due to diarrheal disease.

Typhoid Fever, Cholera and *Shigella* bacterial dysentery were identified over 100 years ago and shown to come from contaminated drinking water. Yet many people still suffer and die from these diseases today because of inadequate and unsafe water supplies, in part because they have no way of knowing if their water is contaminated.

Recently it has been shown that an effective and simple method of detecting contamination is to look for an common indicator in the water, an organism that is always present when there is fecal contamination.

E. coli bacteria are present in large numbers in feces and can survive a long time outside the body. In the 1980's discovery of certain unique enzymes in *E. coli* led to the development of new specific tests for their detection. The World Health Organization now recommends testing for *E. coli* as the method of choice for detecting fecal contamination of water.

Two newer methods of testing for *E. coli* bacteria are the Colilert tube made by IDEXX and the Petrifilm plate by 3M. These two testing products are accepted world wide as accurate and inexpensive and together provide a way for communities to test their water supplies and determine for themselves if the water is safe to drink. By following these procedures, within 24 hours the tests can show the presence of *E. coli* and thus indicate fecal contamination.

Attached are summaries of the methods of use of the Colilert tube and the Petrifilm plates. These summaries are not meant to be complete instructions in the use of these methods but to be a review of material covered in Water Testing workshops. Please use them together with your own notes and experience to properly evaluate your test results.

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